

But little information is available for determining the character and course of the storm after it passed Jamaica. Warnings were, however, issued that the storm was severe and likely to enter the Gulf of Mexico. Later advices show that the Cayman Islands were devastated on the evening of the 11th. Captain Hunter of the schooner *Gov. Blake* has furnished notes regarding the storm at Georgetown, Grand Cayman Island. According to his observations the 8th and 9th were clear and bright at Grand Cayman Island. The 10th was unusually warm with a north-northeast wind that freshened steadily. In the afternoon the weather became cloudy and a little rain fell in the evening. From 8 a. m. to 8 p. m., local time, the barometer fell from 29.80 to 29.70 inches. At 1 p. m. of the 11th the barometer read 29.50 inches, the wind was blowing about 30 miles an hour from the north-northeast, and the sky was covered with thick, black clouds from the same quarter. At 4 p. m. the wind was blowing about 45 miles an hour, and at 5 p. m., with the barometer at 29.30 inches, the wind was blowing in heavy gusts at 65 miles, and the clouds hung so low that they seemed to almost touch the tree tops. At 7 p. m. the roaring of the wind began, and at 8 p. m., with the barometer reading 29.00, the wind blew at 90 miles an hour in terrific gusts that churned up the water in the harbor of Georgetown and blew out to sea or capsized several vessels. At this time, 8 p. m., it was supposed that the worst of the storm had passed, but soon the barometer began to fall so rapidly that the needle of the aneroid could be seen to move. The barometer fell until 10 p. m. when it stood at 28.30 inches, with the wind blowing 110 to 120 miles an hour from east-northeast to east-southeast in gusts. About midnight it became almost calm for about thirty minutes, after which the wind came on fiercely from the southeast. At 1 a. m. of the 12th the barometer began to rise, and at 6 a. m. it read 29.30, and at noon 29.70. From midnight until 4 a. m. heavy rain continued in drops as large as gravel stones and with nearly the same abrasive effect. When the sun came out on the morning of the 12th a most desolate sight was presented. Every tree and plant on the island was either blown away or had its leaves and small branches stripped off, and crops were entirely destroyed. About 200 houses were blown down or unroofed, seven out of eight churches on the island were destroyed, vessels on the stocks were picked up and dashed to pieces, and of the 23 vessels in the harbor of Georgetown but one, the *Gov. Blake*, was saved. Most of the crews on board perished, but no one on shore was killed. The wind exhibited some curious freaks, totally demolishing some houses while others close by were not damaged.

Havana, Cuba, reports of the 12th indicated the approach of the storm center toward the southeastern part of the Gulf of Mexico, and advices to this effect were issued. On that date some destruction by high wind was caused to buildings and crops in the province of Pinar del Rio, Cuba.

Reports from Havana on the morning of the 13th appeared to locate the center of disturbance in the southeastern part of the Gulf of Mexico. A report received late in the day from Progreso, Yucatan, indicated that the center of the storm was near the northeast coast of Yucatan, and heavy sea swells were reported at Pensacola, Fla., and Fort Morgan, Ala. Reports from various sources indicate that the storm was very severe on the Yucatan coast and adjacent waters of the Gulf during the 13th. The captain of the steamship *Navarre* reports that he left Vera Cruz, Mexico, at 11 a. m., August 12, course 62° north, barometer 30.04, weather fine, and fresh breeze from east-northeast. At 1 a. m. of the 13th, when approaching The Triangle on the border of Campeachy Banks, the weather, though still fair, began to change, particularly in the north-northeast, where the sky was copper colored. The barometer had fallen to 29.88, with some heavy showers from the north-northeast, and a slight swell from the northeast.

At 5 a. m., in 21° 24' north, 94° west from Paris (91°

40' west from Greenwich), a squall from the northeast struck the vessel, the sea became heavy, the barometer had fallen to 29.76, the sky was overcast, and the wind increased in strength and shifted to north-northeast, to return to northeast at 11 a. m. At noon, in 21° 58' north, 90° 5' west from Greenwich, the weather had become stormy, the sea rougher and rougher, and by 2 p. m. the wind had increased to hurricane force from the northeast, the vessel was head on the waves, and the barometer had fallen to 29.61.

Between 3 and 6 p. m., when 15 miles south of the Alacranes, the hurricane was encountered in its full fury, the barometer reading 29.45, and the sea exceedingly rough. At 7 p. m. the worst of the storm had passed, the wind had shifted to the eastward, and the sea became less rough. At 8 p. m., in north 22° 25', west 89° 5' from Greenwich, the barometer had risen to 29.65, the wind had changed to east-northeast, and the sea had become calmer. At 11 p. m. the steamer resumed its usual speed, and continued on its course with fair weather.

Following a north of west course the vortex of the storm apparently reached the coast of Tamaulipas, Mexico, on the 15th, where it dissipated. Attending its passage many vessels were cast ashore on the coast of Yucatan, shipping and property were damaged from Yucatan to Tampico, and large tracts of the southern Gulf coast were submerged.

The approximate path of this hurricane from the 8th to the 15th is shown on Chart No. X.

When the fact is considered that, except during its passage over Jamaica, the hurricane center did not come within the region of telegraphic observation the difficulty experienced in defining its probable future course will be appreciated. With the ever present probability of a northward recurve of the storm, shipping interests were daily advised of the danger of sailing for southern waters that lay in its possible line of advance, and many disasters were doubtless averted by an observance of the warnings.

Freshets occurred at intervals during the month in the streams of the lower Missouri Valley.

On the 4th storm warnings were ordered from New Haven, Conn., to Boston, Mass., and during the 5th a northeast gale caused damage to small vessels along the southern New England coast. From the 29th to 31st strong easterly winds prevailed on the middle Atlantic and southern New England coasts.

No serious damage by frost was reported during the month.

BOSTON FORECAST DISTRICT.

Local storms of marked violence occurred on the 5th and 19th, the former covering a large portion of Connecticut, while the latter was most severe in Vermont. A northeast gale, with rain and fog, prevailed along the coast on the 29th and 30th, delaying shipping and causing some damage to small craft. Timely warnings were displayed in connection with the storms, and no destructive winds occurred without warning.—*J. W. Smith, District Forecaster.*

NEW ORLEANS FORECAST DISTRICT.

Advisory warnings concerning the tropical hurricane that moved westward across the Caribbean Sea and the Gulf of Mexico proved of great value to shipping interests. Much damage was sustained by vessels that sailed into this storm, and several were reported lost. Many vessels remained in port until it was evident that they could pursue their course without danger.—*I. M. Cline, District Forecaster.*

CHICAGO FORECAST DISTRICT.

No storm warnings were displayed during the month, but advisory messages for severe local squalls were sent to most of the Lake ports August 5, and to those on Lake Superior on the 17th. On the night of the 20th advisory messages were sent to Lake Superior points for southerly gales, due to the approach of a storm of decided energy which had formed in Assiniboia.

The atmospheric conditions on the 5th were quite critical for a large portion of the Lake district, the oscillations of pressure being remarkably great. At Chicago a fall of about .20 inch occurred between 11 a. m. and 12 noon, and then again about .11 inch from 1:30 to 2:15 p. m. Severe squalls resulted in this vicinity and in the surrounding country. Several seiches occurred on southern Lake Michigan, the water rising and falling a number of times during the day. The lowest point reached at Chicago was 2.5 feet below normal and the highest 2.5 above, a fluctuation of 5 feet.

Except two warm periods, 3d to 5th, and 21st to 23d, the month was unusually cool throughout the district.

Heavy rainfalls occurred quite frequently during the month, the most marked periods being in the Missouri Valley, Kansas, and upper Mississippi Valley on the 1st; the upper Mississippi Valley and Lake region on the 3d; Illinois and the Ohio Valley on the 5th, and the Missouri and central Mississippi valleys on the 24th. The most pronounced heavy rains for a number of years began on the eastern Rocky Mountain slope on the 25th, and extended from that section eastward to the Atlantic coast during the 26th, 27th, and 28th. A number of stations in eastern Nebraska, northern Missouri and southwestern Iowa reported from 5 to 7.5 inches of rainfall in twenty-four hours.—*F. J. Walz, Inspector.*

DENVER FORECAST DISTRICT.

The month was not marked by unusual conditions.—*F. H. Brandenburg, District Forecaster.*

SAN FRANCISCO FORECAST DISTRICT.

On the 18th local storms occurred in southern California, and in places in San Bernardino County trees were uprooted by the wind. Some buildings were struck by lightning, but the damage was not great.—*A. G. McAdie, Professor of Meteorology.*

PORTLAND, OREG., FORECAST DISTRICT.

No storms or frost occurred and no warnings were issued.—*E. A. Beals, District Forecaster.*

AREAS OF HIGH AND LOW PRESSURE.

Movements of centers of areas of high and low pressure.

Number.	First observed.			Last observed.			Path.		Average velocity.	
	Date.	Lat. N.	Long. W.	Date.	Lat. N.	Long. W.	Length.	Duration.	Daily.	Hourly.
High areas.										
I.....	4, a. m.	47	123	8, p. m.	41	72	3,025	4.5	672	28.0
II.....	8, a. m.	45	123	16, p. m.	46	60	4,725	8.5	556	23.2
III.....	16, p. m.	47	88	19, p. m.	46	60	1,925	3.0	642	26.8
IV.....	17, a. m.	53	122	21, p. m.	35	75	3,000	4.5	667	27.8
V.....	25, p. m.	53	108	29, p. m.	46	60	2,475	4.0	619	25.8
VI.....	27, a. m.	54	114	4, a. m.*	41	72	3,125	8.0	391	16.3
Sums.....							18,275	32.5	3,547	147.9
Mean of 6 paths.....							3,046		591	24.6
Mean of 32.5 days.....									562	23.4
Low areas.										
I.....	1, a. m.	37	120	8, a. m.	46	60	4,000	7.0	571	23.8
II.....	6, p. m.	39	108	8, p. m.	35	94	900	2.0	450	18.8
III.....	7, p. m.	50	97	10, p. m.	46	60	1,975	3.0	658	27.4
IV.....	8, p. m.	48	104	12, p. m.	48	68	2,225	4.0	556	23.2
V.....	17, a. m.	51	104	19, a. m.	48	68	1,625	2.0	812	33.8
VI.....	17, p. m.	37	120	22, p. m.	48	68	3,200	5.0	640	26.7
VII.....	24, p. m.	41	117	29, a. m.	37	75	2,900	4.5	644	26.9
Sums.....							16,825	27.5	4,331	180.6
Mean of 7 paths.....							2,403		619	25.8
Mean of 27.5 days.....									611	25.5

*September.

For graphic presentation of the movements of these highs and lows see Charts I and II.—*George E. Hunt, Chief Clerk, Forecast Division.*

RIVERS AND FLOODS.

Frequent and copious rains over the Missouri and upper Mississippi watersheds during the month prevented the usual seasonal decline in the rivers of those districts, and their mean stages were somewhat higher than during the preceding month, as well as considerably above the normal August stages.

The lower Mississippi fell almost steadily throughout the month, but no low water was experienced in any locality. The stages of the Ohio River and its tributaries were fairly satisfactory for all purposes except those of the upper Tennessee River, where low water necessitated a suspension of navigation for about one-half of the month.

On the 28th and 29th there were heavy rains over the upper Susquehanna watershed, and the river began to rise rapidly on the 29th. At Wilkesbarre, Pa., the river rose 14.6 feet from the 28th to the 30th, inclusive, with a maximum stage of 20 feet, or 3 feet above the danger line. Warnings of the coming rise were issued on the previous day, the water then standing at 7.3 feet.

Heavy rains fell over Texas during the last week of July, the amounts over the middle drainage basins of the Colorado and Brazos rivers ranging from 3 to 9 inches. The result was a marked rise in the rivers, necessitating the issue of flood warnings, beginning on July 29. The following report on these floods was prepared by Mr. L. H. Murdoch, Section Director, in charge of the United States Weather Bureau office at Galveston, Tex.:

Heavy rains began to fall over Texas on July 25, and by the 29th and 30th the middle drainage basins of the Colorado and Brazos rivers had received between 3 and 9 inches of precipitation. On the 29th the following warning was telegraphed to interested places on the Colorado River:

"Heavy floods will occur in streams emptying into the Colorado River near Austin, causing a marked rise in the Colorado River at Austin by Friday (in two days)."

On July 30 the following was telegraphed to interested localities along the Brazos River:

"Heavy floods will occur in streams emptying into the Brazos River between Waco and Hempstead, causing a decided rise in the Brazos River within the next few days."

The rise in the Colorado River at Austin was less than expected and unimportant, but a few miles below that place the river rose rapidly and left its banks. On the 30th a special observation telegraphed from Columbus showed a stage of 28.2 feet, or 4.2 feet above the danger line. The following warning was immediately telegraphed to towns below Columbus:

"Colorado River 4 feet above the danger line at Columbus. Crest of flood will reach Wharton by Sunday (in three days) and Bay City by Tuesday (in five days). Flood stages will continue several days."

The river continued to rise at Columbus until August 1, when a reading of 34.9 feet was recorded. Columbus is the lowest station on the Colorado River, and no record of levels below that point was received.

The rise in the Brazos River at Waco was only a few feet, but many of the streams flowing into it between Waco and Hempstead overflowed the adjacent bottoms. In a few localities the Brazos River itself left its banks, but not generally. The river rose quite rapidly at Hempstead, and the regular observation on August 3 gave a stage of 31.5 feet with rising water. On August 3 the following warning was telegraphed to points below Hempstead:

"Brazos River 32 feet at Hempstead and rising slowly. Flood stages of about 35 feet are now indicated for points below Hempstead. Crest of flood will reach Richmond and Booth about Thursday (August 6)."

The crest of the flood reached Booth on August 4, but practically the same level continued on the morning of the 5th. The highest stage recorded at Booth was 25.3 feet.

While not verified in some details, the warnings were timely and of great value to people having property interests in the river bottoms. The warnings issued for the Brazos River and the streams emptying therein were very favorably commented upon by the press.

A special case, in which the warnings proved of great value, is that of the Brazoria Irrigation Company, with headquarters in Galveston. One of the lifts of this company, located near Richmond, burned down a few days before the high water, and the brick wall next to the river collapsed. The coming flood would cause damage to the amount of several thousand dollars if the wall was not immediately repaired. When the flood warnings were issued the irrigation company chartered a special train, carrying mechanics and material to their plant. The workmen were able to keep the wall above the rising water and no damage resulted.

The highest and lowest water, mean stage, and monthly